



## SEQUENCE LISTING

<110> KIM, BUM-JOON  
KIM, CHANG-JIN  
KO, YOUNG HWAN  
KOH, JEONG-SAM  
PARK, DONG-JIN  
LEE, HYANG BURM  
SEOUL, HONG KIM  
KIM, SUN-HUYN

<120> IDENTIFICATION METHOD OF GENUS STREPTOMYCES BY USING  
groEL2 GENE

<130> 05823.0260-00000

<140> 10/824,527

<141> 2004-04-15

<150> KR 2003-24656

<151> 2003-04-18

<150> KR 2003-80580

<151> 2003-11-14

<160> 61

<170> PatentIn Ver. 3.2

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<213> Artificial Sequence

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<211> 420

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<400> 13

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<213> *Streptomyces capillispiralis*

<400> 16

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<211> 422

<212> DNA

<213> *Streptomyces catenulae*

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&lt;400&gt; 20

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&lt;210&gt; 21

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&lt;212&gt; DNA

<213> *Streptomyces chattanoogenesis*

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 <213> *Streptomyces collinus*

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 ggtatcgagc gcgccgtcga ggccgtctcc gccgccctgc tggagcaggc gaaggacgtc 180  
 gagaccaagg agcagatcgc ctccacggcc tccatctccg ccgccgacac ccagatcggc 240  
 gagctcatcg ccgaggccat ggacaaggtc ggcaagggaag gcgtcatcac cgtcgaggag 300



tcccagacct tcggtctgga gctggagctc accgagggta tgcgcttcga caagggctac 360  
atctcggcgt acttcgccac cgacatggag cgtatggagg ccgtcctcga cgacccgtac 420

<210> 30

<211> 423

<212> DNA

<213> *Streptomyces erumpens*

<400> 30

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cgcggtatcg agaaggccgt cgaggccgtc tccgcgccc tgctcgagca ggccaaggac 180  
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ggcgagctga tcgccgaggc catggacaag gtccgcaagg aaggcgtcat caccgtcgag 300  
gagtcaccaga ccttcggtct ggagctggaa ctaccgagg gtatgcgctt cgacaagggc 360  
tacatctcgg cgtactttgc caccgacatg gagcgcattg aggccgcgct cgacgacccg 420  
tac 423

<210> 31

<211> 420

<212> DNA

<213> *Streptomyces fulvissimus*

<400> 31

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ggcatcgaga aggccgtcga ggccgtctcc ggccgctcgc tcgagcaggc caaggacgtg 180  
gagaccaagg agcagatcgc ttcgaccgcc tccatctccg ccgccgacac ccagatcggc 240  
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tcgcagacct tcggtctgga gctcgagctc accgagggca tgcgcttcga caagggctac 360  
atctcggcgt acttcgccac cgacatggag cgtatggagg ccgtcgtcga cgacccgtac 420

<210> 32

<211> 420

<212> DNA

<213> *Streptomyces galilaeus*

<400> 32

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ggcatcgaga aggccgtcga ggccgtctcc ggtgccctcc tcgagcaggc gaaggatgtc 180  
gagaccaagg agcagatcgc ttcgacggcc tccatctccg ccgccgacac ccagatcggc 240  
gagctcatcg ccgaggcgat ggacaaggtc ggcaagggaag gcgtcatcac ggtcgaggag 300  
tcgcagacct tcggtctcga gctcgagctc accgagggca tgcgcttcga caagggctac 360  
atctcggcgt acttcgcgac cgacatggag cgtatggagg ccgtcctcga cgacccgtac 420

<210> 33

<211> 420

<212> DNA

<213> *Streptomyces griseochromogenes*

<400> 33

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ctggtcgaagg aaggcctccg caacgtcgcg gccggcgcca acccgatggc tctgaagcgc 120

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ggtatcgaga aggccgtcga ggccgtctcc gccgccctcc tcgagcaggc gaaggacgtc 180
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gagctgatcg ccgaggccat ggacaaggtc ggcaaggaag gcgtcatcac cgtcgaggag 300
agcaacacct tcggtctgga gctcgagctc accgagggca tgcgcttcga caagggctac 360
atctcgcgct acttcgcgac cgacatggag cgcattggagg cggcgctcga ggaccctac 420

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<210> 34

<211> 420

<212> DNA

<213> *Streptomyces griseolus*

<400> 34

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ctcgctccgtg agggcctgcg caacgtcgcc gccggtgcc aaccgatggc tctcaagcgt 120
ggcatcgaga aggccgtcga ggccgtctcc gccgccctgc tggagcaggc caaggacgtg 180
gagaccaagg agcagatcgc ttcgaccgcc tccatctccg ccgccgacac cgagatcggc 240
tccaagatcg ccgaggcgat ggacaaggtc ggcaaggaag gcgtcatcac cgtcgaggag 300
tcccagacct tcggtctgga gctggaactc accgagggta tgcgcttcga caagggctac 360
atctcggcgt acttcgccac cgacatggag cgtatggaga cgtcgcttcga cgaccctac 420

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<210> 35

<211> 420

<212> DNA

<213> *Streptomyces griseoviridis*

<400> 35

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gagaccaagg agcagatcgc ctccacggcc tccatctccg ccgccgacac ccagatcggc 240
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tcccagacct ttggtctgga gctggagctc accgagggta tgcgcttcga caagggctac 360
atctcggcgt acttcgccac cgacatggag cgtatggagg ccgtgctcga cgaccctac 420

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<210> 36

<211> 420

<212> DNA

<213> *Streptomyces humiferus*

<400> 36

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ctgggtcaagg aaggcctgcg caacgtcgcg gccggcgcca aaccgatggc cctgaagcgc 120
ggtatcgaga aggccgtcga ggccgtctcc gccgccctgc tcgagcaggc caaggacgtc 180
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gagctcatcg ccgaggccat ggacaaggtc ggcaaggaag gcgtcatcac cgtcgaggag 300
tcccagacct tcggtctgga gctggagctc accgagggta tgcgcttcga caagggctac 360
atctcggcgt acttcgccac cgacatggag cgtatggagg cgtcgctcga cgaccctac 420

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<210> 37

<211> 420

<212> DNA

<213> *Streptomyces hygroscopicus*

&lt;400&gt; 37

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aagaagacgg acgacgtcgc cgggtgacggc acgacgaccg cgaccgtcct ggcccaggcc 60
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gagaccaagg agcagatcgc ttcgaccgcc tccatctccg ccgctgacac ccagatcggc 240
gagctcatcg ccgaggccat ggacaaggtc ggcaagggaag gcgtcatcac cgtcgaggag 300
tcccagacct tcggtctgga gctggaactc accgagggtg tgcgcttcga caagggttac 360
atctcggcgt acttcgccac cgacatggag cgtatggagg cgtcgctcga cgaccgtac 420

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&lt;210&gt; 38

&lt;211&gt; 420

&lt;212&gt; DNA

<213> *Streptomyces minutiscleroticus*

&lt;400&gt; 38

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ggtatcgaga agggcgtcga ggccgtctcc ggtgccctgc tggagcaggc gaaggacgtc 180
gagaccaagg agcagatcgc ctccacggcc tccatctccg ccgccgacgt ccagatcggc 240
gagctcatcg ccgaggccat ggacaaggtc ggcaagggaag gcgtcatcac cgtcgaggag 300
tcccagacct tcggtctgga gctggagctc accgagggtg tgcgcttcga caagggttac 360
atctcggcgt acttcgccac cgacatggag cgtatggagg ccgtcctcga cgaccgtac 420

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&lt;210&gt; 39

&lt;211&gt; 423

&lt;212&gt; DNA

<213> *Streptomyces murinus*

&lt;400&gt; 39

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cgcggtatcg agaaggccgt cgaggccgtc tccgccgccc tgctcgagca ggccaaggac 180
gtcgagacca aggagcagat cgccctccacc gcgtccatct ccgccgccga caccagatc 240
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gagagcaaca ccttcggtct ggagcttgag ctaccgagg gcattgcgctt cgacaagggc 360
tacatcttcg cctacttcgc caccgacatg gagcgcattg aggcgtcgct cgacgaccgg 420
tac 423

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&lt;210&gt; 40

&lt;211&gt; 420

&lt;212&gt; DNA

<213> *Streptomyces nodosus*

&lt;400&gt; 40

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ggtatcgaga agggcgtcga ggccgtctcc accgccctgc tggagcaggc gaaggacgtc 180
gagaccaagg agcagatcgc ctccacggcc tccatctccg ccgccgacac ccagatcggc 240
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tcgcagacct tcggtctcga gctcgagctc accgagggtg tgcgcttcga caagggttac 360
atctcggcgt acttcgccac cgacatggag cgtatggagg ccgtcctcga cgaccgtac 420

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<210> 41  
 <211> 420  
 <212> DNA  
 <213> *Rhodococcus equi*

<400> 41  
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 tcgaactcct tcggcctgca gctcgagctc accgagggtg tgcgcttcga caagggctac 360  
 atctcgctgt acttcgcgac cgacgccgag cgtcagggaag cggtcctcga ggatccgtac 420

<210> 42  
 <211> 420  
 <212> DNA  
 <213> *Tsukamurella paurometabola*

<400> 42  
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<210> 43  
 <211> 420  
 <212> DNA  
 <213> *Streptomyces scabiei*

<400> 43  
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<210> 44  
 <211> 420  
 <212> DNA  
 <213> *Streptomyces scabiei*

<400> 44  
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<210> 45  
 <211> 420  
 <212> DNA  
 <213> Streptomyces scabiei

<400> 45  
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 ggcatcgaga aggccgtcga ggccgtctcc ggcgccctgc tggagcaggc gaaggatgtc 180  
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 tcccagacct tcggtctgga gctggagctc accgagggta tgcgcttcga caagggttac 360  
 atctcggcgt acttcgccac cgacatggag cggatggagg cgtcgctcga cgaccgttac 420

<210> 46  
 <211> 420  
 <212> DNA  
 <213> Streptomyces scabiei

<400> 46  
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 ggcatcgaga aggccgtcga ggccgtctcc ggcgccctgc tggagcaggc caaggacgtg 180  
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 tcccagacct tcggtctgga gctggaactc accgagggta tgcgcttcga caagggttac 360  
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<210> 47  
 <211> 420  
 <212> DNA  
 <213> Streptomyces scabiei

<400> 47  
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 ggcatcgaga aggccgtcga ggccgtctcc ggcgccctgc tggagcaggc gaaggatgtc 180  
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 tcccagacct tcggtctgga gctggagctc accgagggta tgcgcttcga caagggttac 360  
 atctcggcgt acttcgccac cgacatggag cgtatggagg ccgtcctcga cgaccgttac 420

<210> 48  
 <211> 420  
 <212> DNA  
 <213> Streptomyces scabiei

<400> 48  
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 ggcatcgaga aggccgtcga ggccgtctcc ggcgccctgc tggagcaggc gaaggatgtc 180  
 gagaccaagg agcagatcgc ttccacggcc tccatctccg ccgccgacac ccagatcggc 240  
 gagctcatcg ccgaggcgat ggacaaggtc ggcaagggaag gcgtcatcac cgtcgaggag 300

tcccagacct tcggtctgga gctggagctc accgagggta tgcgcttcga caagggctac 360  
atctcggcgt acttcgccac cgacatggag cgtatggagg ccgtcctcga cgacccgtac 420

<210> 49

<211> 420

<212> DNA

<213> *Streptomyces scabiei*

<400> 49

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ggcatcgaga aggccgtcga ggccgtctcc gccgctctgc tggagcaggc gaaggacgtg 180  
gagaccaagg agcagatcgc ttcgacggcc tccatctccg ctgccgacac cgagatcggc 240  
gccaaagatcg ccgaggcgat ggacaaggtc ggcaaggaag gcgtcatcac cgtcgaggag 300  
tcccagacct tcggtctgga gctggagctc accgagggta tgcgcttcga caagggctac 360  
atctcggcgt acttcgccac cgacatggag cgtatggaga cgtcgttcga cgacccgtac 420

<210> 50

<211> 420

<212> DNA

<213> *Streptomyces acidiscabies*

<400> 50

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ggcatcgaga aggccgtcga ggccgtctcc ggccgctcc tggagcaggc gaaggacgtc 180  
gagaccaagg agcagatcgc ctccacggcc tccatctccg ccgccgacac gcagatcggc 240  
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tcgcagacct tcggcctgga gcttgagctc accgagggca tgcgcttcga caagggctac 360  
atctcggcgt acttcgcgac cgacatggag cgcattggagt cgtccctgga cgacccgtac 420

<210> 51

<211> 420

<212> DNA

<213> *Streptomyces turgidiscabies*

<400> 51

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ggcatcgaga aggccgtcga ggccgtctcc ggtgcgtgc tgcaccaggc gaaggaggtc 180  
gagacgaagg agcagatcgc ttcgaccgcc tccatctccg ccgccgacac gcagatcggc 240  
gagctcatcg ccgaggcgat ggacaaggtc ggcaaggaag gcgtcatcac cgtcgaggag 300  
tcccagacct tcggtctgga gctggaactc accgagggta tgcgcttcga caagggctac 360  
atctcggcgt acttcgcgac cgacatggag cgcattggagg cgtcgttcga ggaccctac 420

<210> 52

<211> 420

<212> DNA

<213> *Streptomyces turgidiscabies*

<400> 52

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ggcatcgaga aggccgtcga ggccgtctcc ggtgcgtgc tgcaccaggc gaaggaggtc 180

gagacgaagg agcagatcgc ttcgaccgcc tccatctccg ccgccgacac gcagatcggc 240  
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 tcccagacct tcggtctgga gctggaactc accgagggtg tgcgcttcga caagggctac 360  
 atctcggcgt acttcgcgac cgacatggag cgcattggagg cgtcgctcga ggaccctac 420

<210> 53

<211> 420

<212> DNA

<213> *Streptomyces turgidiscabies*

<400> 53

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 ggcatcgaga aggccgtcga ggccgtctcc ggtgcgctgc tcgaccaggc gaaggagggtc 180  
 gagacgaagg agcagatcgc ttcgaccgcc tccatctccg ccgccgacac gcagatcggc 240  
 gagctcatcg ccgaggcgat ggacaagggtc ggcaaggaag gcgtcatcac cgtcgaggag 300  
 tcccagacct tcggtctgga gctggaactc accgagggtg tgcgcttcga caagggctac 360  
 atctcggcgt acttcgcgac cgacatggag cgcattggagg cgtcgctcga ggaccctac 420

<210> 54

<211> 420

<212> DNA

<213> *Streptomyces turgidiscabies*

<400> 54

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 ggcatcgaga aggccgtcga ggccgtctcc ggtgcgctgc tcgaccaggc gaaggagggtc 180  
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 tcccagacct tcggtctgga gctggaactc accgagggtg tgcgcttcga caagggctac 360  
 atctcggcgt acttcgcgac cgacatggag cgcattggagg cgtcgctcga ggaccctac 420

<210> 55

<211> 420

<212> DNA

<213> *Streptomyces bottropensis*

<400> 55

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 ggcatcgaga aggccgtcga ggccgtctcc ggcgccctgc tggagcaggc gaaggatgtc 180  
 gagaccaagg agcagatcgc ttccacggcc tccatctccg ccgccgacac ccagatcggc 240  
 gagctcatcg ccgaggcgat ggacaagggtc ggcaaggaag gcgtcatcac cgtcgaggag 300  
 tcccagacct tcggtctgga gctggagctc accgagggtg tgcgcttcga caagggctac 360  
 atctcggcgt acttcgccac cgacatggag cgtatggagg ccgtcctcga cgaccctac 420

<210> 56

<211> 420

<212> DNA

<213> *Streptomyces diastatochromogenes*

<400> 56

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<210> 57

<211> 420

<212> DNA

<213> *Streptomyces neyagawaensis*

<400> 57

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<210> 58

<211> 420

<212> DNA

<213> *Streptomyces scabiei*

<400> 58

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gagaccaagg agcagatcgc ttccacggcc tccatctccg ccgccgacac ccagatcggc 240
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<210> 59

<211> 420

<212> DNA

<213> *Streptomyces scabiei*

<400> 59

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```

<210> 60

<211> 420

<212> DNA

<213> *Streptomyces acidiscabies*



&lt;400&gt; 60

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tcccagacct tcggtctgga gctggaactc accgagggca tgcgcttcga caagggtac 360
atctcggcct acttcgcgac cgacatggag cgtatggagg cgtccctgga cgaccctac 420

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&lt;210&gt; 61

&lt;211&gt; 420

&lt;212&gt; DNA

<213> *Streptomyces acidiscabies*

&lt;400&gt; 61

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aagaagacgg acgacgtcgc cggtgacggc acgacgaccg cgacgggcct ggcccaggca 60
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ggcatcgaga aggccgtcga ggccgtctcc ggcgccctgc tggagcaggc gaaggacgtc 180
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